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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/756,901	01/14/2004	Paul A. Farrar	303.572US2	3098

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EXAMINER
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CLARK, SHEILA V

ART UNIT	PAPER NUMBER
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2815

DATE MAILED: 02/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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**Office Action Summary**

Application No.

10/756,901

Applicant(s)

FARRAR, PAUL A.

Examiner

S. V. Clark

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 December 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 1-8 and 33-40 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17-32 is/are allowed.
- 6) ☒ Claim(s) 9-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Applicant is to note that though the response to the restriction requirement filed 12-6-2004 mentioned that claims 1-8, 33-40 were cancelled. There failed to be provided a formal amendment to cancel said claims so said claims have not been cancelled and are still pending.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 9, 11 are rejected under 35 U.S.C. 102(a) as being anticipated by Akram et al.

Akram et al teaches forming a memory device with an array of memory cells see figure 4a and col.5, line 14-18 whereby a metal pattern line circuit patterns are taught to be connected to bond pads 122 (see also figure 4b) and connected to solder balls 123.

Akram teaches in col. 8 that an insulating layer (passivation ) is formed over contacts pads 122 and then portions are removed to expose said pads ( see col., 8 lines 48-50. Solder is taught deposited on the exposed pad portions (col. 8, line 55) and then a heating curing or annealing step is taught ( line 64).

Solders formed of tin/lead are taught col. 8, in line 53.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Akram et al in view of Thomas.

Akram et al teaches as discussed above all the features of the claims except for specific teaching of these specific deposition techniques. As Akram et al mentions in col. 8, lines 54-55, that pad 122 "may be bumped using techniques that are known in the industry" such well known techniques such as immersion may obviously be utilized as taught by Thomas (see for example figure 2).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akram et al in view of Thomas.

Akram et al teaches forming a memory device with an array of memory cells see figure 4a and col.5, line 14-18 whereby a metal pattern line circuit patterns are taught to be connected to bond pads 122 ( see also figure 4b) and connected to solder balls 123.

Akram teaches in col. 8 that an insulating layer ( passivation ) is formed over contacts pads 122 and then portions are removed to expose said pads ( see col., 8 lines 48-50. Solder is taught deposited on the exposed pad portions ( col. 8, line 55) and

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then a heating curing or annealing step is taught ( line 64). And solders formed of tin/lead are taught col. 8, in line 53.

Akram et al teaches as discussed above all the features of the claims except for specific teaching of immersing the substrate in molten solder or an immersion technique. As Akram et al mentions in col. 8, lines 54-55, that pad 122 "may be bumped using techniques that are known in the industry" such well known techniques such as immersion may obviously be utilized as taught by Thomas (see for example figure 2 show this step).

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 14-16 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 8, 9, 11 of U.S. Patent No. 6, 844, 253 in view of Akram et al. The features of the instant claims relative to the solder ball forming step are taught but the patented claims but fail to specifically direct this attachment of said solder balls to a specific invention. Solder balls are typically attached to semiconductor chips of all types such as memory cell structures as Akram

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et al. shows. It would have been therefore obvious to one having ordinary skill in this art to mount the solder balls of the patented invention to a memory device such as the one taught by Akram because solder balls are typically attached to semiconductor chips of all types such as memory cell structures as Akram et al shows to provide for electrical connection to supporting structures such as printed circuit boards and other I/O devices.

Claims 14-16 are rejected.

Claims 17- 32 are considered allowable over the prior art of record.

Any inquiry concerning this communication should be directed to S. V. Clark at telephone number (571) 272-1725.



S. V. Clark  
Primary Examiner  
Art Unit 2815

February 19, 2005